IN THE CLAIMS

Please amend the claims as follows.

For the Examiner's convenience, a list of all claims is included below.

1. (Currently Amended) A method comprising:

receiving one or more multi-tone signals at a voice-band modem, the signals transmitted over a local loop, the multi-tone signals containing a plurality of frequencies;

determining a discrete Fourier transform value for each of two or more frequencies of the plurality of frequencies;

summing a set of discrete Fourier transform values corresponding to a set of high frequencies to obtain a first power spectral density value and summing a set of discrete Fourier transform values corresponding to a set of low frequencies to obtain a second power spectral density value; and

determining a characteristic of the local loop based upon the first power spectral density value and the second power spectral density value~~.~~, wherein the characteristic of the local loop is the presence of a loading coil or a length of a local loop.

2. (Previously Presented) The method of claim 1 wherein determining a characteristic of the local loop based upon the first power spectral density value and the second power spectral density value includes dividing the first power spectral density value by the second power spectral density value to obtain a power ratio value and determining a characteristic of the local loop based upon the power ratio value.

3. (Original) The method of claim 2 wherein the set of high frequencies comprises 3450 Hz, 3600 Hz, and 3750 Hz, the set of low frequencies comprises 1500 Hz, 1650 Hz, and 1950 Hz, and the characteristic of the local loop is the presence of a loading coil on the local loop.

4. (Original) The method of claim 2 wherein determining a characteristic of the local loop based upon the power ratio value comprises determining the presence of a loading coil on the local loop if the power ratio is below a first specified value and determining the absence of a loading coil on the local loop if the power ratio is above a second specified value, the first specified value and the second specified value based upon the set of high frequencies and the set of low frequencies.

5. (Original) The method of claim 4 wherein the set of high frequencies comprises 3450 Hz, 3600 Hz, and 3750 Hz, the set of low frequencies comprises 1500 Hz, 1650 Hz, and 1950 Hz, the first specified value is –20 dB, and the second specified value is –15 dB.

6. (Original) The method of claim 2 wherein the set of high frequencies comprises 3450 Hz, 3600 Hz, and 3750 Hz, the set of low frequencies comprises 600 Hz, 750 Hz, and 1050 Hz, and the characteristic of the local loop is a length of the local loop.

7. (Original) The method of claim 3 further comprising:

determining a second characteristic of the local loop based upon the power ratio value.

8. (Original) The method of claim 7 wherein the characteristic of the local loop is the presence of a loading coil on the local loop and the second characteristic of the local loop is the length of the local loop.

9. (Original) The method of claim 1 further comprising:

determining a broadband connection support capability of the local loop based upon the determination of the characteristic of the local loop; and

displaying the results of the determination of broadband connection support.

10. (Original) The method of claim 9 wherein determining a broadband connection support capability of the local loop based upon the determination of the characteristic of the local loop comprises determining that the local loop supports a broadband connection if the power ratio is above a specified value, the specified value based upon the set of high frequencies and the set of low frequencies.

11. (Currently Amended) A machine-readable medium that provides executable instructions, which when executed by a processing system, cause said processing system to perform a method, the method comprising:

receiving one or more multi-tone signals at a voice-band modem, the signals transmitted over a local loop, the multi-tone signals containing a plurality of frequencies;

determining a discrete Fourier transform value for each of two or more frequencies of the plurality of frequencies;

summing a set of discrete Fourier transform values corresponding to a set of high frequencies to obtain a first power spectral density value and summing a set of discrete Fourier

transform values corresponding to a set of low frequencies to obtain a second power spectral density value; and

determining a characteristic of the local loop based upon the first power spectral density value and the second power spectral density value~~.~~, wherein the characteristic of the local loop is the presence of a loading coil or a length of a local loop.

12. (Previously Presented) The machine-readable medium of claim 11 wherein determining a characteristic of the local loop based upon the first power spectral density value and the second power spectral density value includes dividing the first power spectral density value by the second power spectral density value to obtain a power ratio value and determining a characteristic of the local loop based upon the power ratio value.

13. (Original) The machine-readable medium of claim 12 wherein the set of high frequencies comprises 3450 Hz, 3600 Hz, and 3750 Hz, the set of low frequencies comprises 1500 Hz, 1650 Hz, and 1950 Hz, and the characteristic of the local loop is the presence of a loading coil on the local loop.

14. (Original) The machine-readable medium of claim 12 wherein determining a characteristic of the local loop based upon the power ratio value comprises determining the presence of a loading coil on the local loop if the power ratio is below a first specified value and determining the absence of a loading coil on the local loop if the power ratio is above a second specified value, the first specified value and the second specified value based upon the set of high frequencies and the set of low frequencies.

15. (Original) The machine-readable medium of claim 12 wherein the method further comprises:

determining a second characteristic of the local loop based upon the power ratio value.

16. (Original) The machine-readable medium of claim 15 wherein the characteristic of the local loop is the presence of a loading coil on the local loop, and the second characteristic of the local loop is the length of the local loop.

17. (Original) The machine-readable medium of claim 12 wherein the method further comprises:

determining a broadband connection support capability of the local loop based upon the determination of the characteristic of the local loop; and

displaying the results of the determination of broadband connection support.

18. (Currently Amended) An apparatus comprising:

a processor;

a memory coupled to the processor, the memory having stored thereon one or more executable instructions, which when executed by the processor cause the processor to perform a method comprising:

receiving one or more multi-tone signals at a voice-band modem, the signals transmitted over a local loop, the multi-tone signals containing a plurality of frequencies;

determining a discrete Fourier transform value for each of two or more frequencies of the plurality of frequencies,

summing a set of discrete Fourier transform values corresponding to a set of high frequencies to obtain a first power spectral density value and summing a set of discrete Fourier transform values corresponding to a set of low frequencies to obtain a second power spectral density value; and

determining a characteristic of the local loop based upon the first power spectral density value and the second power spectral density value~~.~~, wherein the characteristic of the local loop is the presence of a loading coil or a length of a local loop.

19. (Previously Presented) The machine-readable medium of claim 18 wherein determining a characteristic of the local loop based upon the first power spectral density value and the second power spectral density value includes dividing the first power spectral density value by the second power spectral density value to obtain a power ratio value and determining a characteristic of the local loop based upon the power ratio value.

20. (Original) The apparatus of claim 19 wherein determining a characteristic of the local loop based upon the power ratio value comprises determining the presence of a loading coil on the local loop if the power ratio is below a first specified value and determining the absence of a loading coil on the local loop if the power ratio is above a second specified value, the first specified value and the second specified value based upon the set of high frequencies and the set of low frequencies.

21. (Original) The apparatus of claim 20 wherein the set of high frequencies comprises 3450 Hz, 3600 Hz, and 3750 Hz, the set of low frequencies comprises 1500 Hz, 1650 Hz, and 1950 Hz, the first specified value is –20 dB, and the second specified value is –15 dB.

22. (Original) The apparatus of claim 19 wherein the set of high frequencies comprises 3450 Hz, 3600 Hz, and 3750 Hz, the set of low frequencies comprises 600 Hz, 750 Hz, and 1050 Hz, and the characteristic of the local loop is a length of the local loop.

23. (Original) The apparatus of claim 19 wherein the method further comprises:

determining a second characteristic of the local loop based upon the power ratio value.

24. (Original) The apparatus of claim 23 wherein the characteristic of the local loop is the presence of a loading coil on the local loop, and the second characteristic of the local loop is the length of the local loop.

25. (Original) The apparatus of claim 19 wherein the method further comprises:

determining a broadband connection support capability of the local loop based upon the determination of the characteristic of the local loop; and

displaying the results of the determination of broadband connection support.

26. (Currently Amended) An apparatus to determine characteristics of a local loop, the apparatus to

receive one or more multi-tone signals at a voice-band modem, the signals transmitted over a local loop, the multi-tone signals containing a plurality of frequencies;

determine a discrete Fourier transform value for each of two or more frequencies of the plurality of frequencies,

sum a set of discrete Fourier transform values corresponding to a set of high frequencies to obtain a first power spectral density value and summing a set of discrete Fourier transform values corresponding to a set of low frequencies to obtain a second power spectral density value; and

determine a characteristic of the local loop based upon the first power spectral density value and the second power spectral density value~~.~~, wherein the characteristic of the local loop is the presence of a loading coil or a length of a local loop.

27. (Previously Presented) The apparatus of claim 26 wherein determining a characteristic of the local loop based upon the first power spectral density value and the second power spectral density value includes dividing the first power spectral density value by the second power spectral density value to obtain a power ratio value and determining a characteristic of the local loop based upon the power ratio value.

28. (Currently Amended) An apparatus comprising:

a processor;

a voice-band modem coupled to the processor, the voice-band modem including a loop characterization function to receive one or more multi-tone signals at a voice-band modem, the signals transmitted over a local loop, the multi-tone signals containing a plurality of frequencies, determine a discrete Fourier transform value for each of two or more frequencies of the plurality of frequencies, sum a set of discrete Fourier transform values corresponding to a set of high frequencies to obtain a first power spectral density value and to sum the a set of discrete Fourier transform values corresponding to a set of low frequencies to obtain a second power spectral density value, and determine a characteristic of the local loop based upon the first power spectral

density value and the second value~~.~~, wherein the characteristic of the local loop is the presence of a loading coil or a length of a local loop.

29. (Previously Presented). The apparatus of claim 28 wherein determining a characteristic of the local loop based upon the first power spectral density value and the second power spectral density value includes dividing the first power spectral density value by the second power spectral density value to obtain a power ratio value and determining a characteristic of the local loop based upon the power ratio value.